

### ABSTRACT

A variable optical attenuator including: a birefringent element positioned to separate an input optical signal into two spatially separated, orthogonally polarized beams; a LC modulator positioned to receive the orthogonally polarized beams and selectively alter their polarizations; a reflective element positioned to reflect the beams back through the LC modulator and the birefringent element, wherein the birefringent element recombines orthogonally polarized components of the reflected beams to produce an output optical signal; and a controller coupled to the LC modulator to selectively cause the LC modulator to alter the polarizations of the orthogonally polarized beams, wherein during operation the controller is responsive to a request to variably attenuate the intensity of the output optical signal relative to the intensity of the input optical signal to one of multiple non-zero attenuation settings.